WHAT IS CLAIMED IS:

1. A white light-emitting OLED device, comprising:

a) a spaced anode and cathode;

b) a hole-transporting layer disposed over the anode;

c) a first light-emitting layer disposed on the hole-transporting layer including an electron-transporting material host and a yellow light-emitting dopant for producing yellow light;

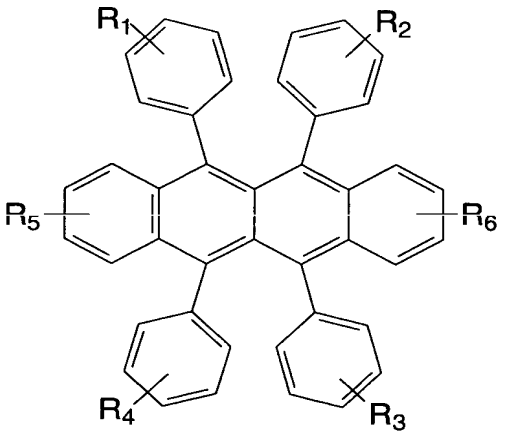
d) a second light-emitting layer disposed on the first light-emitting layer and including a blue host and a blue dopant for producing blue light; and

e) an electron-transporting layer disposed between the cathode and the second light-emitting layer.

2. The white light-emitting OLED device of claim 1 wherein the first light-emitting layer host includes Alq, Gaq, Inq, or Mgq.

3. The white light-emitting OLED device of claim 1 wherein the blue host includes ADN or TBADN.

4. The white light-emitting OLED device of claim 1 wherein the yellow light-emitting dopant includes



wherein R_1, R_2, R_3, R_4, R_5, R_6 represent one or more substituents on each ring where each substituent is individually selected from the following groups:

Group 1: hydrogen, or alkyl of from 1 to 24 carbon atoms;

Group 2: aryl or substituted aryl of from 5 to 20 carbon atoms;

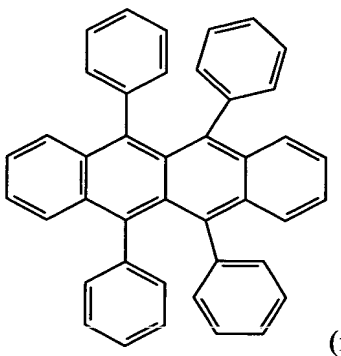
Group 3: carbon atoms from 4 to 24 necessary to complete a fused aromatic ring of phenyl, naphthyl, anthracenyl, phenanthryl, pyrenyl, or perylenyl;

Group 4: heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms such as thiazolyl, furyl, thienyl, pyridyl, quinolinyl or other heterocyclic systems, which may be bonded via a single bond, or may complete a fused heteroaromatic ring system;

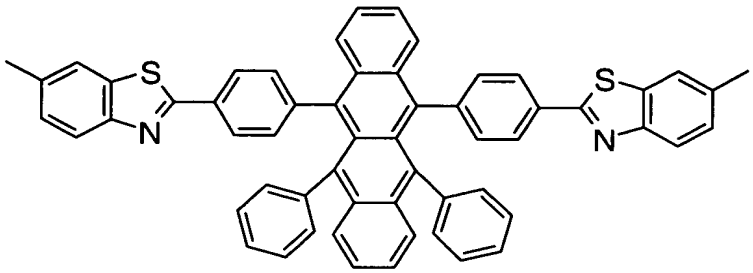
Group 5: alkoxylamino, alkylamino, or arylamino of from 1 to 24 carbon atoms; or

Group 6: fluorine, chlorine, bromine or cyano.

5. The white light-emitting OLED device of claim 4 wherein the yellow light-emitting dopant includes 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR), with the following formulas:

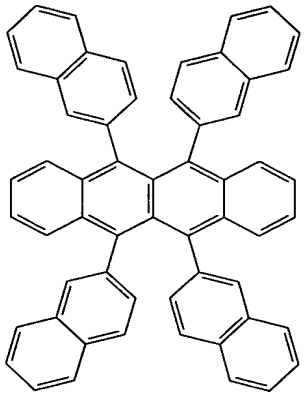


(rubrene);



(DBzR);

or



(NR).

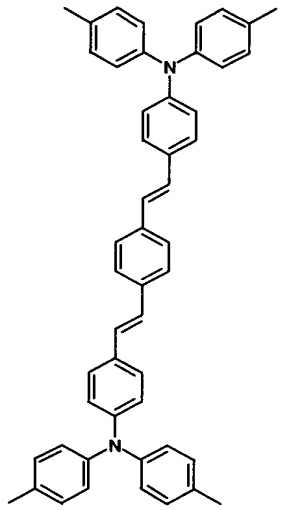
6. The white light-emitting OLED device of claim 5 wherein the concentration of yellow light-emitting dopant 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is in a range of from greater than 0 and less than 30% by volume of the electron-transporting material host.

7. The white light-emitting OLED device of claim 5 wherein the concentration of yellow light-emitting dopant 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is preferably in a range of from greater than 0 and less than 5% by volume of the electron-transporting material host.

8. The white light-emitting OLED device of claim 1 wherein the thickness of the first light-emitting layer is between 5 nm to 100 nm.

9. The white light-emitting OLED device of claim 1 wherein the thickness of the second light-emitting layer is between 5 nm to 100 nm.

10. The white light-emitting OLED device of claim 1 wherein the blue dopant includes distyrylamine derivatives as shown by the formula



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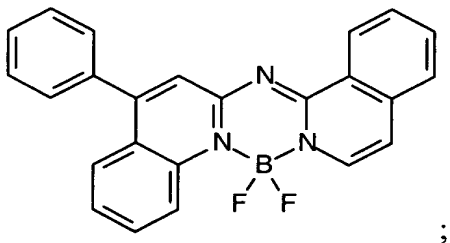
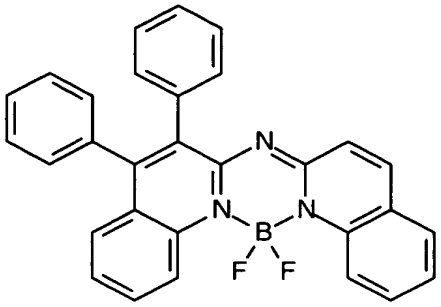
11. The white light-emitting OLED device of claim 1 wherein the blue-emitting dopant includes perylene and its derivatives.

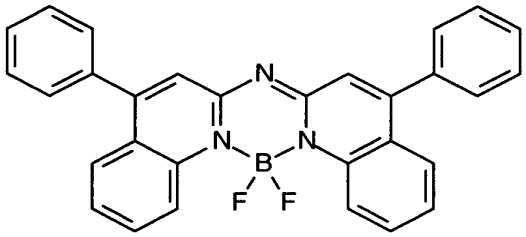
12. The white light-emitting OLED device of claim 1 wherein the blue dopant is represented by the following formulas:

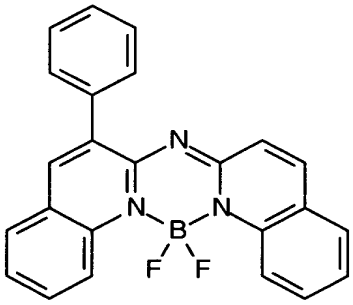
B-2

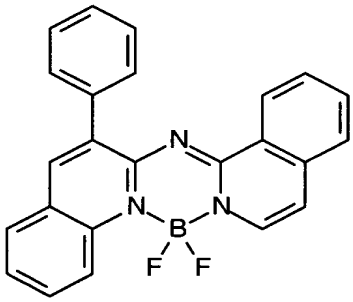


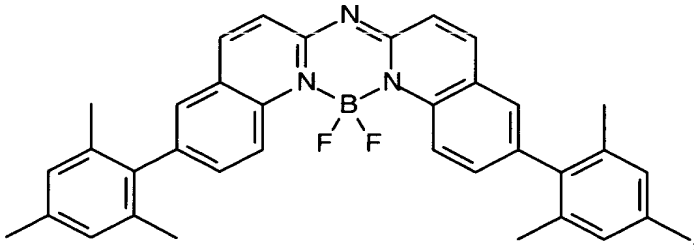
;

B-3  ;

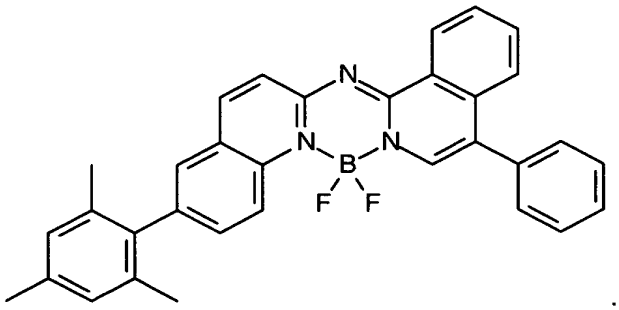
B-4  ;

B-5  ;

B-6  ;

B-7  ; and

B-8



13. The white light-emitting OLED device of claim 12 wherein the concentration of blue-emitting dopants is in the range of greater than 0 and less than 10% by volume of the blue host.

14. The white light-emitting OLED device of claim 12 wherein thickness of the hole-transporting layer is between 10 nm-300 nm.

15. A white light-emitting OLED device, comprising:

a) a spaced anode and cathode;

b) a hole-transporting layer disposed over the anode;

c) a first light-emitting layer disposed on the hole-transporting layer including a first electron-transporting material host and a first yellow light-emitting dopant for producing yellow light;

d) a second light-emitting layer disposed on the first light-emitting layer and including a blue host and a blue dopant for producing blue light; and

e) at least one electron-transporting layer adjacent to the second light-emitting layer, and disposed between the second light-emitting layer and the cathode, comprising a second electron-transporting material host and a second yellow light-emitting dopant..

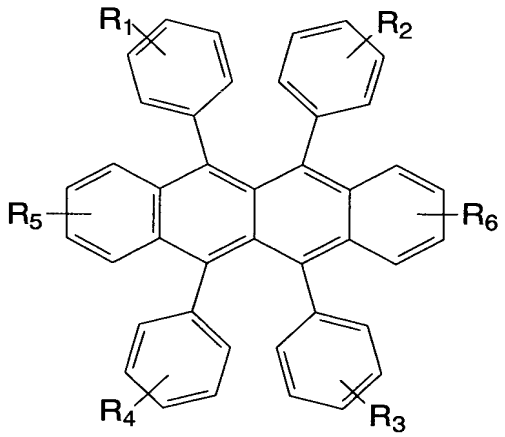
16. The white light-emitting OLED device of claim 15 wherein the first electron-transporting material host and the second electron-transporting material hostare the same or different.

17. The white light-emitting OLED device of claim 15 further including at least two electron-transporting layers, the one nearest to the cathode is not doped.

18. The white light-emitting OLED device of claim 15 wherein the first electron-transporting material host and the second electron-transporting material host includes Alq, Gaq, Inq, or Mgq.

19. The white light-emitting OLED device of claim 15 wherein the blue host in the second light-emitting layer includes ADN or TBADN.

20. The white light-emitting OLED device of claim 15 wherein the first or second yellow dopants include



wherein R_1, R_2, R_3, R_4, R_5, R_6 represent one or more substituents on each ring where each substituent is individually selected from the following groups:

Group 1: hydrogen, or alkyl of from 1 to 24 carbon atoms;

Group 2: aryl or substituted aryl of from 5 to 20 carbon atoms;

Group 3: carbon atoms from 4 to 24 necessary to complete a fused aromatic ring of phenyl, naphthyl, anthracenyl, phenanthryl, pyrenyl, or perylenyl;

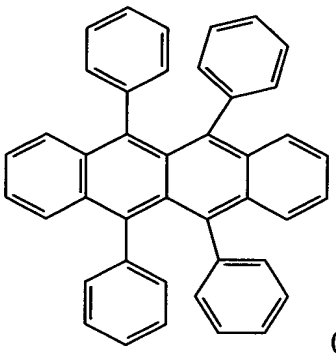
Group 4: heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms such as thiazolyl, furyl, thienyl, pyridyl, quinolinyl or other heterocyclic systems,

which may be bonded via a single bond, or may complete a fused heteroaromatic ring system;

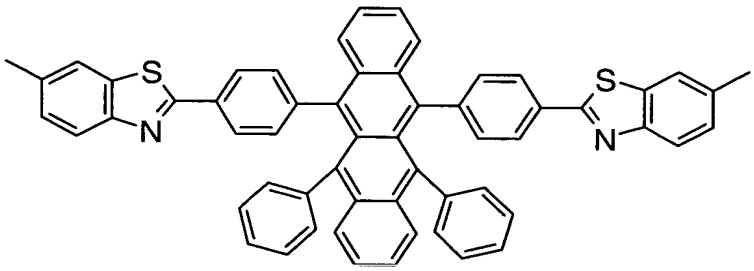
Group 5: alkoxylamino, alkylamino, or arylamino of from 1 to 24 carbon atoms; or

Group 6: fluorine, chlorine, bromine or cyano.

21. The white light-emitting OLED device of claim 15 wherein the first and second yellow-emitting dopants includes 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR), with the following formulas:

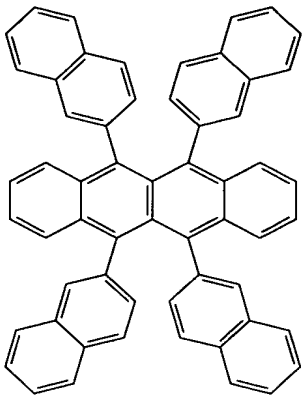


(rubrene);



(DBzR);

or



(NR).

22. The white light-emitting OLED device of claim 15 wherein the concentration of the first and the second yellow-emitting dopants 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is in a range of from greater than 0 and less than 30% by volume of the their corresponding host.

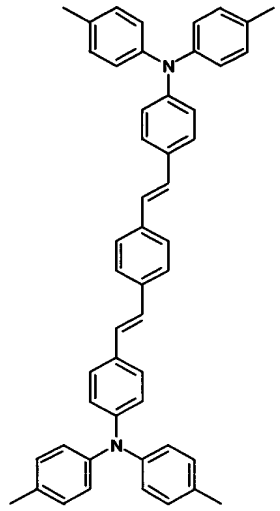
23. The white light-emitting OLED device of claim 15 wherein the concentration of yellow-emitting dopants 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is preferably in a range of from greater than 0 and less than 5% by volume of their corresponding host.

24. The white light-emitting OLED device of claim 15 wherein the thickness of the first emission layer is between 5 nm to 100 nm.

25. The white light-emitting OLED device of claim 15 wherein the thickness of the second emission layer is between 5 nm to 100 nm.

26. The white light-emitting OLED device of claim 15 wherein the thickness of the doped and the undoped electron-transporting layers is between 5 nm to 100 nm.

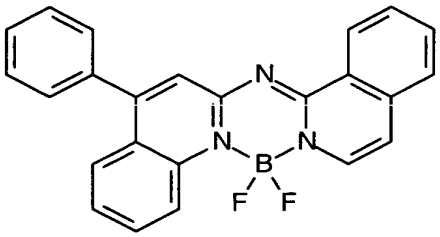
27. The white light-emitting OLED device of claim 15 wherein the blue dopant includes distyrylamine derivatives includes



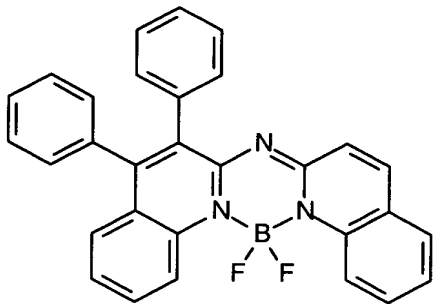
28. The white light-emitting OLED device of claim 15 wherein the blue-emitting dopant includes perylene and its derivatives.

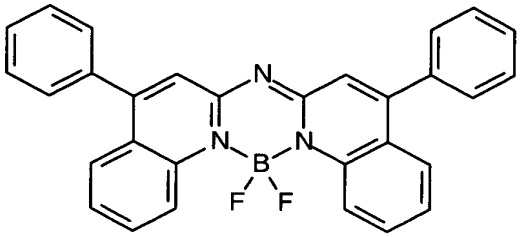
29. The white light-emitting OLED device of claim 15 wherein the blue dopant is represented by the following formulas:

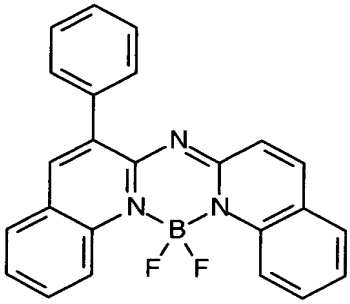
B-2

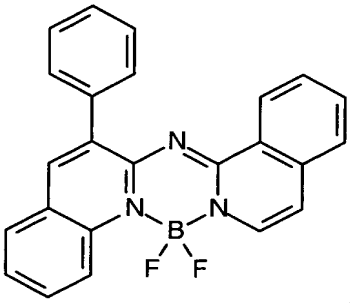


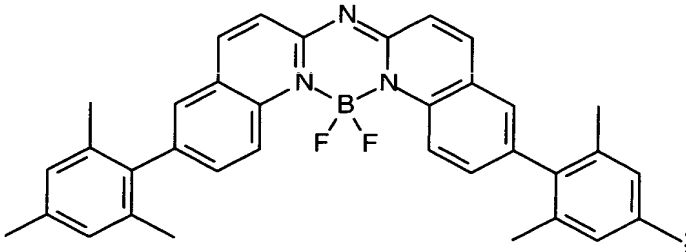
;

B-3  ;

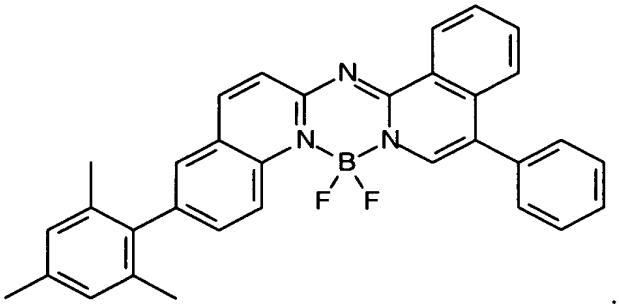
B-4  ;

B-5  ;

B-6  ;

B-7  ; and

B-8



30. The white light-emitting OLED device of claim 15 wherein the concentration of blue-emitting dopants is in the range of greater than 0 and less than 10% by volume of the blue host material.

31. The white light-emitting OLED device of claim 15 wherein thickness of the hole-transporting layer is between 10-300 nm.

32. A white light-emitting OLED device, comprising:

a) a spaced anode and cathode;

b) a first hole-transporting layer disposed over the anode;

c) a second hole-transporting layer disposed over the first hole-transporting layer and including a hole-transporting material host and a third yellow light-emitting dopant;

d) a first light-emitting layer disposed on the second hole-transporting layer including a first electron-transporting material host and a first yellow light-emitting dopant for producing yellow light;

e) a second light-emitting layer disposed on the first light-emitting layer including a blue host and a blue dopant for producing blue light; and

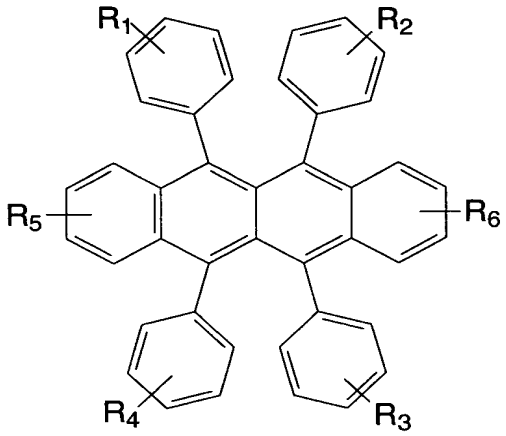
f) an electron-transporting layer disposed between the cathode and the second light-emitting layer.

33. The white light-emitting OLED device of claim 32 wherein the first and third yellow dopants are the same or different.

34. The white light-emitting OLED device of claim 32 wherein the first electron-transporting material host includes Alq, Gaq, Inq, or Mgq.

35. The white light-emitting OLED device of claim 32 wherein the blue host in the second emission layer includes ADN or TBADN.

36. The white light-emitting OLED device of claim 32 wherein the first or third yellow dopants include



wherein R_1, R_2, R_3, R_4, R_5, R_6 represent one or more substituents on each ring where each substituent is individually selected from the following groups:

Group 1: hydrogen, or alkyl of from 1 to 24 carbon atoms;

Group 2: aryl or substituted aryl of from 5 to 20 carbon atoms;

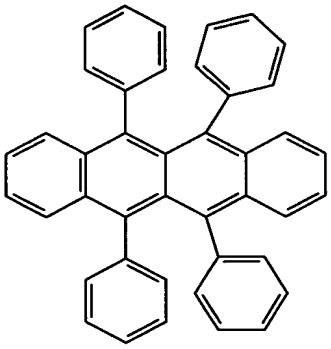
Group 3: carbon atoms from 4 to 24 necessary to complete a fused aromatic ring of phenyl, naphthyl, anthracenyl, phenanthryl, pyrenyl, or perylenyl;

Group 4: heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms such as thiazolyl, furyl, thienyl, pyridyl, quinolinyl or other heterocyclic systems, which may be bonded via a single bond, or may complete a fused heteroaromatic ring system;

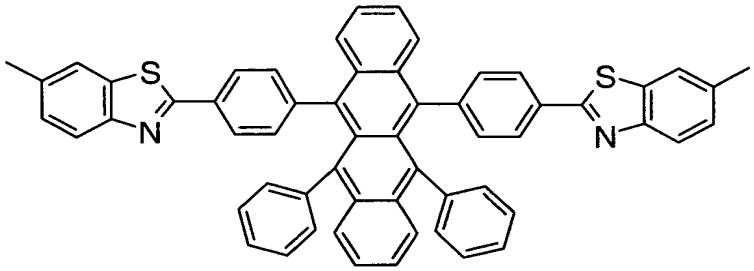
Group 5: alkoxylamino, alkylamino, or arylamino of from 1 to 24 carbon atoms; or

Group 6: fluorine, chlorine, bromine or cyano.

37. The white light-emitting OLED device of claim 32 wherein the first and third yellow light-emitting dopants includes 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR), with the following formulas:

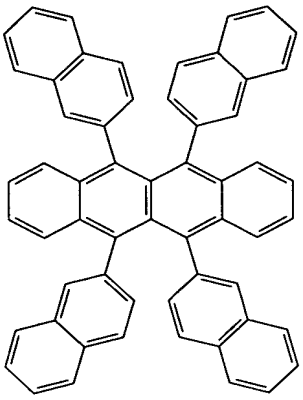


(rubrene);



(DBzR);

or



(NR).

38. The white light-emitting OLED device of claim 32 wherein the concentration of the first and the third yellow light-emitting dopants 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is in a range of from greater than 0 and less than 30% by volume of the their corresponding host.

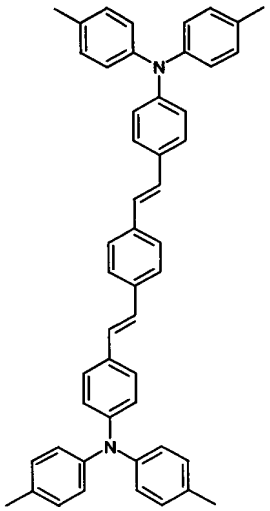
39. The white light-emitting OLED device of claim 32 wherein the concentration of yellow light-emitting dopants 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is preferably in a range of from greater than 0 and less than 5% by volume of their corresponding host.

40. The white light-emitting OLED device of claim 32 wherein the thickness of the first light-emitting layer is between 5 nm to 100 nm.

41. The white light-emitting OLED device of claim 32 wherein the thickness of the second light-emitting layer is between 5-100 nm.

42. The white light-emitting OLED device of claim 32 wherein the thickness of the electron-transporting layer is between 5-100 nm.

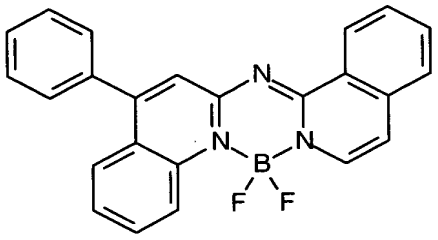
43. The white light-emitting OLED device of claim 32 wherein the blue dopant includes distyrylamine derivatives includes

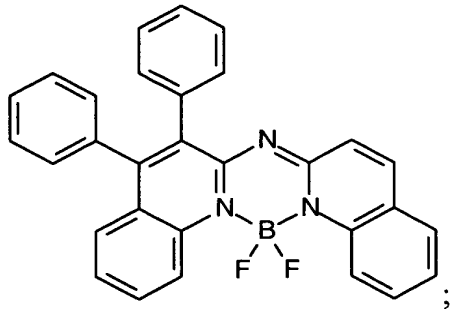


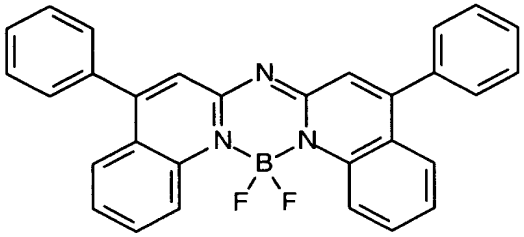
44. The white light-emitting OLED device of claim 32 wherein the blue-emitting dopant includes perylene and its derivatives.

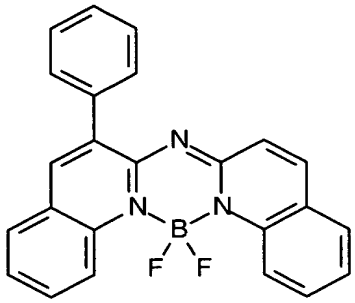
45. The white light-emitting OLED device of claim 32 wherein the blue dopant is represented by the following formulas:

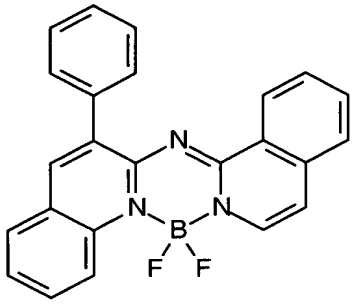
B-2

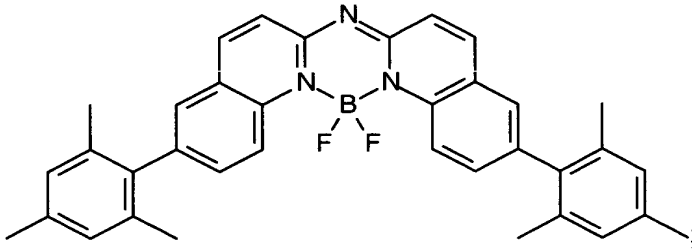


B-3  ;

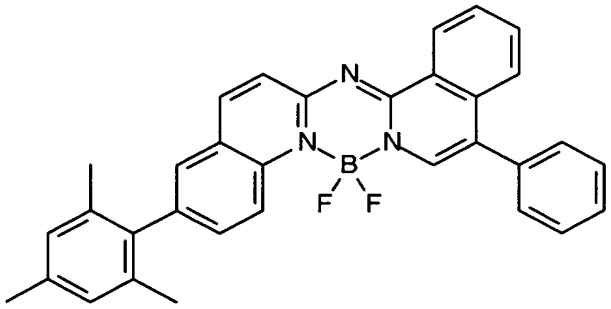
B-4  ;

B-5  ;

B-6  ;

B-7  ; and

B-8



46. The white light-emitting OLED device of claim 32 wherein the concentration of blue-emitting dopants is in the range of greater than 0 and less than 10% by volume of the blue host material.

47. The white light-emitting OLED device of claim 32 wherein thickness of the hole-transporting layer is between 10-300 nm.

48. A white light-emitting OLED device, comprising:

a) a spaced anode and cathode;

b) a first hole-transporting layer disposed over the anode;

c) a second hole-transporting layer disposed over the first hole-transporting layer and including a hole-transporting material host and a third yellow light-emitting dopant;

d) a first light-emitting layer disposed on the second hole-transporting layer including a first electron-transporting material host and a first yellow light-emitting dopant for producing yellow light;

e) a second light-emitting layer disposed on the first light-emitting layer including a blue host and a blue dopant for producing blue light;

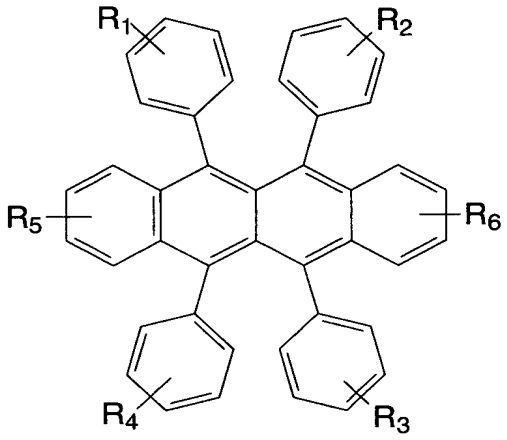
f) at least one electron-transporting layer adjacent to the second light-emitting layer, and disposed between the second light-emitting layer and the cathode, comprising a second electron-transporting material host and a second yellow light-emitting dopant; and

49. The white light-emitting OLED device of claim 48 wherein the first, second, and third yellow dopants are the same or different.

50. The white light-emitting OLED device of claim 48 wherein the first or second electron-transporting material host includes Alq, Gaq, Inq, or Mgq.

51. The white light-emitting OLED device of claim 48 wherein the blue host includes ADN or TBADN.

52. The white light-emitting OLED device of claim 48 wherein the first, second, or third yellow dopants include



wherein R_1, R_2, R_3, R_4, R_5, R_6 represent one or more substituents on each ring where each substituent is individually selected from the following groups:

Group 1: hydrogen, or alkyl of from 1 to 24 carbon atoms;

Group 2: aryl or substituted aryl of from 5 to 20 carbon atoms;

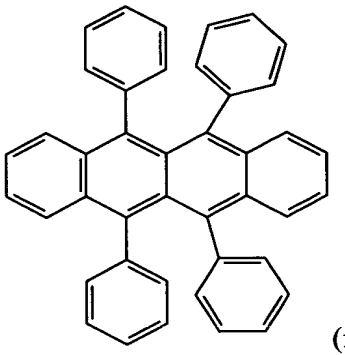
Group 3: carbon atoms from 4 to 24 necessary to complete a fused aromatic ring of phenyl, naphthyl, anthracenyl, phenanthryl, pyrenyl, or perylenyl;

Group 4: heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms such as thiazolyl, furyl, thienyl, pyridyl, quinolinyl or other heterocyclic systems, which may be bonded via a single bond, or may complete a fused heteroaromatic ring system;

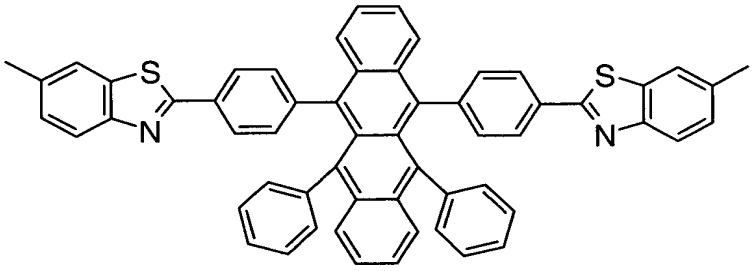
Group 5: alkoxylamino, alkylamino, or arylamino of from 1 to 24 carbon atoms; or

Group 6: fluorine, chlorine, bromine or cyano.

53. The white light-emitting OLED device of claim 48 wherein the first, second, and third yellow-emitting dopants includes 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR), with the following formulas:

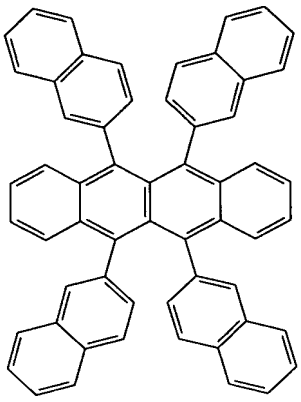


(rubrene);



(DBzR);

or



(NR).

54. The white light-emitting OLED device of claim 48 wherein the concentration of the first, second, and third yellow-emitting dopants 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is in a range of from greater than 0 and less than 30% by volume of the their corresponding host.

55. The white light-emitting OLED device of claim 48 wherein the concentration of yellow-emitting dopants 5,6,11,12-tetraphenylnaphthacene (rubrene); 6,11-diphenyl-5,12-bis(4-(6-methyl-benzothiazol-2-yl)phenyl)naphthacene (DBzR) or 5,6,11,12-tetra(2-naphthyl)naphthacene (NR) is preferably in a range of from greater than 0 and less than 5% by volume of their corresponding host.

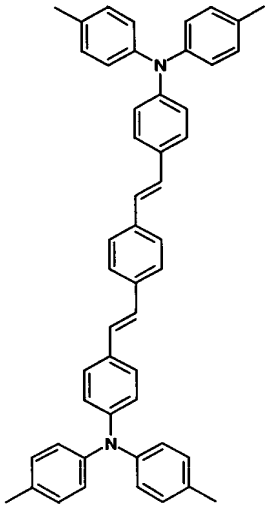
56. The white light-emitting OLED device of claim 48 wherein the thickness of the first light-emitting layer is between 5-100 nm.

57. The white light-emitting OLED device of claim 48 wherein the thickness of the second light-emitting layer is between 5-100 nm.

58. The white light-emitting OLED device of claim 48 wherein the thickness of the electron-transporting layer(s) is between 5-100 nm.

59. The white light-emitting OLED device of claim 48 wherein the thickness of the second hole-transporting layer is between 1 nm to 50 nm.

60. The white light-emitting OLED device of claim 48 wherein the blue dopant includes distyrylamine derivatives includes

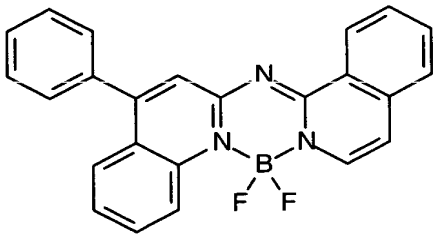


.

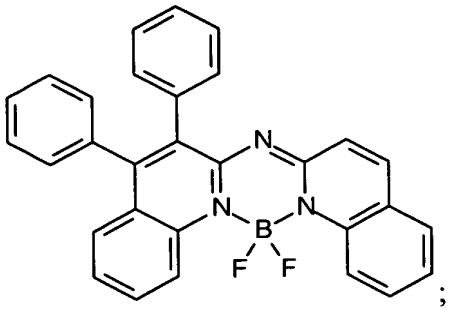
61. The white light-emitting OLED device of claim 48 wherein the blue dopant includes perylene and its derivatives.

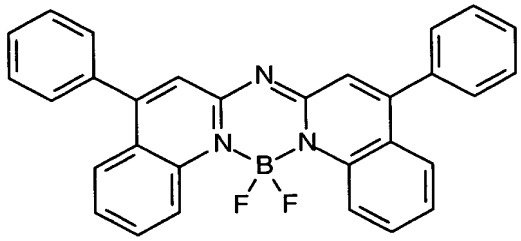
62. The white light-emitting OLED device of claim 48 wherein the blue dopant is represented by the following formulas:

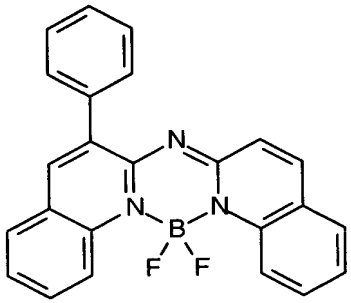
B-2

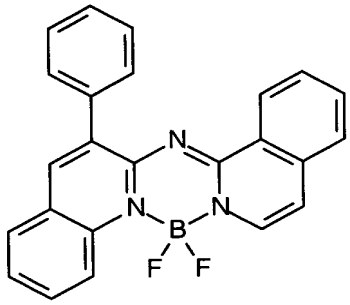


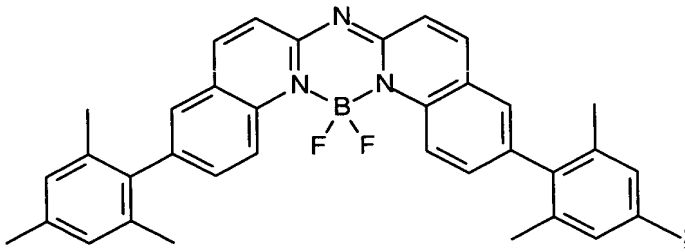
;

B-3  ;

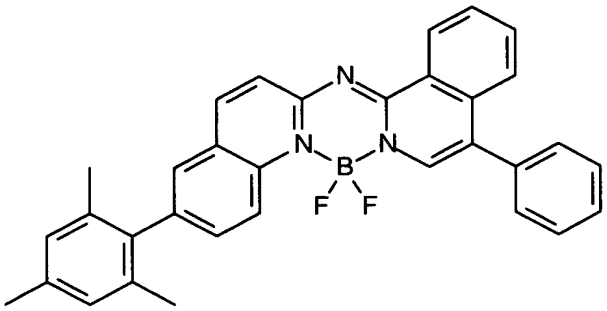
B-4  ;

B-5  ;

B-6  ;

B-7  ; and

B-8



63. The white light-emitting OLED device of claim 48 wherein the concentration of blue-emitting dopants is in the range of greater than 0 and less than 10% by volume of the host material.

64. The white light-emitting OLED device of claim 48 wherein thickness of the first hole-transporting layer is between 10-300 nm.

65. The white light-emitting OLED device of claim 48 further including at least two electron-transporting layers, the one nearest to the cathode is not doped.